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FLOODPLAIN MANAGEMENT RECONNAISSANCE STUDY REPORT

MT. VERNON JEFFERSON COUNTY



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CITY OF MT. VERNON

JEFFERSON COUNTY, ILLINOIS
FLOODPLAIN MANAGEMENT
RECONNAISSANCE STUDY

Prepared By

U.S. Department of Agriculture
Soil Conservation Service
Champaign, Illinois

In cooperation with

STATE OF ILLINOIS
Department of Transportation
Division of Water Resources

December 1984

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CITY OF MT. VERNON
RECONNAISSANCE STUDY

INTRODUCTION

Use of floodprone areas are a severe problem in Illinois. Urbanization and floodplain encroachment are increasing the severity of this problem. Over 800 communities in Illinois have been identified as having flooding problems.

The Illinois Division of Water Resources (DWR) is the responsible state agency for urban flood control and for setting priorities of flood studies within urban areas. The Soil Conservation Service is providing assistance to the Division of Water Resources in setting these priorities. A joint coordination agreement was executed between the Division of Water Resources, State of Illinois, and the USDA, Soil Conservation Service, on April 30, 1976 and revised in December 1978 to furnish technical assistance in carrying out Flood Hazard Studies. These studies are carried out in accordance with Federal Level Recommendation 3 of "A Unified National Program for Flood Plain Management," and under Section 6 of Public Law 83-566. A plan of study was executed in October 1983 for reconnaissance studies for 15 Illinois communities. These reconnaissance studies will utilize existing floodplain information, historical high water profiles, and the 100-year floodplain from floodthe structures within the floodplain.

This study was conducted and the report provided for the purpose of: 1) To evaluate needs for additional future studies, 2) to estimate average annual damages, 3) to provide an updated estimate of the 100 year floodplain and map, and 4) to provide guidance and recommendations to the community for improved floodplain management.

STUDY AREA DESCRIPTION

The city of Mt. Vernon is located in Jefferson County approximately 75 miles southeast of St. Louis, Missouri. The population of Mt. Vernon is 17,193, according to the 1980 census report.

Mt. Vernon is served by a large network of highways and railway systems. The north-south highways include State Route #37 and Interstate Route #57. East-west highways include State Route #15 and Interstate #64. Other state highways running to the south-east and south-west are Routes #142 and #148. The railway system serving Mt. Vernon is made from the following lines: Chicago Eastern Illinois, Jefferson Southwestern, Missouri Pacific, Louisville Nashville, and the Southern Railway. The Mt. Vernon Outland Airport also serves the vicinity which rounds out the adequate transportation network.

Historically, coal and oil production has been an important part of the community with numerous oil wells located in and around the community. With the excellent transportation network, the city has experienced many new industrial plants in the last few years, and is hoping to add more.

The drainage problems of Mt. Vernon are caused by the following: Brickyard Creek with a drainage area of .58 square miles; Bishop Creek, 1.1 square miles drainage area; Botches Ditch; 2.62 square miles drainage area; Bell Ditch, 1.9 square miles drainage area; and Casey Fork, 76.3 square miles drainage area where it meets Route 142 east of the city. The drainage basin is in the Mississippi River Basin, hydrologic unit #07140202, Casey Fork subwatershed #020.

Most of the damages are along the smaller four ditches and creeks which run through the residential areas. Approximately 30% of the floodplain in these areas has been developed into residential areas, with a few scattered businesses.

The major upland soils of the watershed include, Cisne, Wynoose, Blair, Hoyleton, Ava, and Bluford series. These are predominantly poorly to somewhat poorly drained soils except for Ava, which is a well drained soil. The bottom land soils are Bonnie and Belknap series, which are both somewhat poorly drained silt loams. The watershed topography is very rolling, which causes the discharges to rise quickly. The areas adjacent to Casey Fork, however, tend to be wide, flat areas where the water ponds for quite a distance. Soils information was obtained from the Jefferson County General Soils Map, as no modern soil survey is being conducted or planned.

Average annual precipitation is 42 inches with more than half occurring during April through September. The average annual snowfall is 15 inches.

NATURAL VALUES

The city of Mt. Vernon is located in an area of the state that is characterized by an interspersion of land uses. Crop fields are generally moderate in size with scattered pastures, wooded pastures, and some fairly thick timber. The upland drainageways are mostly tree lined providing a large amount of varying quality habitat as well as important travel routes for wildlife. Major concentrations of waterfowl occur in the area from

fall to spring as many thousand ducks and geese spend the winter on Rend Lake. Rend Lake is a Corps of Engineers multi purpose reservoir just downstream from Mt. Vernon on Casey Fork.

The interspersed land use and associated types of habitat support a wide range of plant and animal species, which generally makes the area a pleasant place for people to live, work, and play.

The wide floodplains along Casey Fork serve as flood storage areas during intense rain storms. Without this natural storage, peak discharges would be considerably larger than presently occurs.

FLOOD PROBLEMS

Flooding along Brickyard and Bishop Creeks, Botches and Bell ditches, and Casey Fork is generally the result of local, heavy rainfalls and could occur during any part of the year. Due to the small amount of snowfall in the area, snow melt is generally not a contributing factor to flooding. Since most of the flooding is due to heavy local rainfalls over relatively small watersheds, flooding is generally of short durations.

Mt. Vernon does have some problems with internal drainage as many small tributaries drain into the above mentioned streams. These small tributaries run through the residential areas causing many problems with the drainage going through the various lawns of individual owners.

The four smaller streams located in the residential areas, are fairly shallow ditches, which are subject to overflow because of rapid run off and small capacities. They are meandering streams with some fairly sharp turns. Since the streams are mostly in residential areas, they are kept fairly free of brush and trees. Beginning at the point where the ditches leave the residential areas, they are heavily tree lined to their outlet into larger streams, such as Casey Fork.

Mt. Vernon has had a fairly rapid industrial growth in the last few years. The city is hoping for more growth in the years ahead. A lot of open space around the city is actually within the city limits. A large portion of this land is within the 100 year floodplain. Some of the newer residential areas are getting fairly close to the floodplain. In one instance, the low

land will be left in the form of a park, since it is setting on the edge adjacent to the floodplain.

The Mt. Vernon sewage treatment plant is located on the east side of town. According to city officials, floodwater has backed up into the sewage treatment plant facilities, approximately once every 10 years.

The city has been doing a fairly good job of eliminating or easing several internal drainage problems over the last few years. Problems have been improved in the 10th Street area and above the Salem Road. Minor problems still exist at the old shoe company near Perkins Street and the school yard in the southeast part of the city. The hospital area did a good job when constructing the new parking lots, as water no longer covers this area. There is talk of a future lake, Snow Lake, to be constructed possibly on Harper Creek, that could serve as water supply, flood control, and recreation.

Due to high water tables, heavy rainfall and local ponding, the city pumps between 400-500 basements each year.

PROBLEM SUMMARY

Estimated average annual damages from floodwaters to Casey Fork, Brickyard and Bishop Creeks, Bell Ditch and Botches Ditch, are as follows:

Casey Fork:

6 homes, 5 sheds or garages, and 5 businesses; total value subject to flooding = \$703,000 - average annual damages - \$7,800.

Bishop and Brickyard Creeks

10 trailer homes, 55 homes, 5 homes that basements only are flooded, 20 sheds or garages, and 6 businesses; total value subject to flooding = \$2,258,000 - average annual damages = \$18,200.

Bell Ditch

6 trailer homes, 77 homes, 5 homes that basements only are flooded, 14 sheds or garages, 13 businesses, and 1 church; total value subject to flooding = \$3,106,000 - average annual damages = \$29,900.

Botches Ditch

13 trailer homes, 16 homes, 3 sheds or garages, and 3 businesses; total value subject to flooding = \$828,500 average annual damages = \$6,000

Total Flooding Problems

29 trailer homes

154 homes

10 homes with basement flooding only

42 sheds or garages

27 businesses

1 church

According to the City-300+ wet basements

The average annual damages to streets and lawns are estimated to be \$3,100.

Total estimated average annual damages for the city of Mt. Vernon equals \$65,000.

It is estimated that flooding starts at the 2 year frequency storm.

EXISTING FLOODPLAIN MANAGEMENT

Mt. Vernon has participated in the Regular Phase of the National Flood Insurance Program since February 2, 1984. As of August 1984, 5 policies are in force in the amount of \$117,000.

All home and business owners have the option to purchase flood insurance. New home construction in Mt. Vernon, as well as industrial expansion, is growing very rapidly. The city does require building permits, as they do have zoning ordinances in effect.

RECOMMENDATIONS

It is recommended that the city of Mt. Vernon continue to regulate constuction. Since the groundwater table is high, the city also needs to regulate constuction of excavated crawl spaces, one-half and full basements.

Waste-water from sump pumps should not be outletted into the sanitary sewer system, as it will increase the treatment costs and possibly overload the system. Also, downspouts from rooftops should not be put into the sewer system.

All lateral tributaries draining into the main drainageways, should be maintained in a condition that will allow them to drain properly. Individual owners must not block the proper outlet of these lateral tributaries, by poor yard conditions, debris, or crushed driveway culverts.

To provide adequate outlets, some maintenance on the existing ditches outside of the city limits may be required. This could involve clearing and snagging of trees, brush, and debris.

Since the city is in the process of zoning more open areas for industrial uses, they should also take into consideration that a lot of these areas are now in the 100 year floodplain. Any action taken to fill these areas to meet the building codes, may cause problems for areas that have, at present, met the standards by changing the floodplain.

A low to moderate priority should be assigned for future detailed floodplain management studies in Mt. Vernon.

INVESTIGATION AND ANALYSIS

The 1983 Flood Insurance Study for the city of Mt. Vernon, published by the Federal Emergency Management Agency (FEMA), was used to show the 100 year floodplain. These maps are available upon request from FEMA, and are available at the city hall.

The inventory of flooding and water problems is based on a field review and interviews with local citizens. Damages were based on property value estimates during field review, and the application of damage factors. These factors came from previous floodplain management studies and are based on the frequency and depth of flooding for each property.

Aerial photographs were provided by the Division of Water Resources. No additional calculations, discharges, or profiles were made as a part of this study.

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LEGEND

- Corporate Limits
- 100 Year Floodplain
- Reservoirs



MOUNT VERNON
JEFFERSON COUNTY, ILLINOIS
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

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